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**Final Report**  
**Sustainable Biosphere Initiative Project**  
**Contract Number NCCW-90**

### **Advanced Technologies for Ecological Science**

The goal of the Advanced Technology in Ecological Sciences project is to gain broad participation within the environmental scientific community in developing a research agenda addressing the development and refinement of technologies instrumental to research that responds to these challenges (e.g. global climate change, unsustainable resource use, and threats to biological diversity). The following activities have been completed:

- A listserve "eco-tech" was set up to serve as a clearinghouse of information about activities and events relating to advanced technologies.
- A series of conference calls were organized on specific topics including data visualization and spatial analysis, and remote sensing.
- Two meetings were organized at the 1996 ESA Annual Meeting in Providence, Rhode Island. Topics covered included concerns about tool and data sharing; interest in expanded development of ground-based remote sensing technologies for monitoring; issues involved in training for using new technologies and increasing data streams, and associated implications of data processing capabilities; questions about how to develop appropriate standards (i.e. surface morphology classification standards) that facilitate the exchange and comparison of analytical results; and some thoughts about remote sensing platforms and vehicles.

### **Vegetation Classification**

The Vegetation Classification Panel of the Ecological Society of America (ESA) has worked closely with the Federal Geographic Data Committee (FGDC), Subcommittee on Vegetation Classification to develop and provide scientific review of a National Vegetation Classification Standard. The mission of the Panel is to facilitate and support the development and review of a standardized, scientifically credible, North American vegetation classification system. Its objectives have been to provide a neutral forum for the review of goals and standards for nomenclature, hierarchy, structure, and definitions for North American vegetation classification; promote standardization of named units of vegetation and provide an on-going process of review for modifications and additions of named units; facilitate broad public access to information relating to a standardized North American vegetation classification system; and identify areas for further research and development.

The Panel, at its meeting in March 1996, completed an extensive review of the current draft of the FGDC Vegetation Classification and Information Standards. The Panel's main contribution was to provide outside review and detailed editorial comments on the FGDC Report. Phase I of the Panel's work concluded with its recommendations to the FGDC. The panel then moved into its second phase by developing a document to address areas of interest to ecologists which remained unaddressed in the FGDC forum. Phase II focuses on developing floristic-level standards and a taxonomic unit review process. The Panel began work on "An Initiative for a Standard Classification of Vegetation for the United States" describing a process to establish a scientifically rigorous system to develop and review taxonomic units at the floristic levels of the current FGDC standards.

## **Studies on Ecosystem Management**

Several ecosystem management activities aimed at bringing multiple perspectives to decision-making processes at many levels have been undertaken. These include:

- A series of Conversations on Ecosystem Management brought together stakeholders from all segments of society to address challenges confronting an ecosystem-based approach to the management of natural resources. Three conversations have taken place, the first focusing on incorporating local values into ecosystem management, the second exploring the roles of the small business community in ecosystem management, and the third concentrating on the National Environmental Policy Act (NEPA) and its role in ecosystem management.
- A symposium titled "Ecology and the Social Sciences" was organized for the 1995 ESA Annual Meeting. During the symposium, speakers engaged each other and the audience in discussion on philosophical, economic, sociological, legal, and institutional issues related to natural resource management, with a special focus on ecosystem management. An article summarizing the symposium was published in the *ESA Bulletin* in April 1996.
- The August 1996 issue of *Ecological Applications* was devoted the topic of ecosystem management. The issue contained a report on the scientific basis for ecosystem management, as well as a forum entitled "Perspectives on Ecosystem Management," which featured 20 papers by authors from diverse disciplines.